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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,124	03/15/2004	Timothy N. Jones	018563-006010US	3509
20350	7590	11/29/2004	EXAMINER	
TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			WILSON, JOHN J	
			ART UNIT	PAPER NUMBER
			3732	

DATE MAILED: 11/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/802,124	JONES ET AL.	
Examiner	<b>Art Unit</b>		
John J. Wilson	3732		

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 15 March 2004.  
2a)  This action is **FINAL**.                    2b)  This action is non-final.  
3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)  Claim(s) 1-94 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-94 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 15 March 2004 is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5/7/04, 9/13/04.  
4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.  
5)  Notice of Informal Patent Application (PTO-152)  
6)  Other: \_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 7-9, 11-17, 19-67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al (5338198) in view of Yoon et al (5742700). Wu shows scanning and receiving a 3D data set, finding a component and creating a model of the component using segmentation, column 7, lines 7-10. During the building of a digital model the data, the computer automatically applies tests to the incoming data to build the digital model, as an example see column 8, lines 6-15 of Wu. The segmentation taught by Wu inherently teaches identifying elements or components. Wu does not specifically state segmenting by boundary points. Yoon teaches that it is known to segment by boundary points, Fig. 3, including both automatic and manual segmentation. It would be obvious to one of ordinary skill in the art to modify Wu to include segmenting components using boundary segmentation as taught by Yoon in order to better manipulate the desired regions. To use well known computer graphic tools for this manipulation is an obvious matter of choice in the use of known tools for a known result to one of ordinary skill in the art. That the data can be stored as a 3D volumetric representation is an obvious matter of choice in known imaging to one of ordinary skill in the art. The specific mathematical algorithm used to find the desired portion is an obvious matter of choice in known algorithms for segmentation of data to one of ordinary skill in the art. Yoon also teaches isolating a tooth, see 94 in Fig. 3B

and column 5, lines 30-40. It would be obvious to one of ordinary skill in the art to modify the above combination to include segmenting a tooth as suggested by Yoon in order to isolate the area it is desired to work with. To use automated calculations is an obvious matter of choice in known alternative as shown by the art to the skilled artisan.

Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al in view of Yoon et al as applied to claim 1 above and further in view of Poirier. Wu shows the steps described above, however, Wu does not show the use of X-ray or MRI to obtain data. Poirier teaches obtaining data using X-rays or an MRI, column 3, lines 12-20. It would be obvious to one of ordinary skill in the art to modify the above combination to include using X-rays or an MRI as shown by Poirier in order to make use of art known ways to best gather needed data.

Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al in view of Yoon et al as applied to claim 1 above and further in view of Andersson. Wu shows the steps described above, however, does not show data taken from a photographic image. Andersson teaches taking data from an image, column 2, lines 57-60. It would be obvious to one of ordinary skill in the art to modify the above combination to include using a photographic image as shown by Andersson in order to make use of art known ways to best gather needed data.

Claims 5 and 68-90 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al in view of Yoon et al as applied to claim 1 above and further in view of Andreiko et al (5683243). The above combination does not show scanning a model. Andreiko teaches that it is known to obtain data from a model. It would be obvious to

one of ordinary skill in the art to modify Wu to include scanning a model as shown by Andreiko. As to claim 68, Wu teaches a 3D data set, however, does not show selecting based on an interproximal margin. Andreiko (243) teaches extracting the spacing between teeth. It would be obvious to one of ordinary skill in the art to modify Wu to include using the margins to manipulate data as shown by Andreiko (243) in order to better manipulate the desired regions.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al in view of Yoon et al as applied to claim 1 above, and further in view of Brandestini et al. Wu shows the steps described above, however, does not show data from directly imaging teeth. Brandestini teaches taking data from directly imaging teeth, column 2, lines 33-36. It would be obvious to one of ordinary skill in the art to modify the above combination to include using direct imaging as shown by Brandestini in order to make use of art known ways to best gather needed data.

Claims 10, 18, and 91-94 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al in view of Yoon et al as applied to claim 1 above, and further in view of Andreiko et al (5395238). Wu shows the steps described above, however, does not show the segment being gum tissue. Andreiko (238) teaches data for the gums, see Abstract. It would be obvious to one of ordinary skill in the art to modify the above combination to include gum tissue as a component as shown by Andreiko (238) in order to treat the desired area of the mouth. The specific mathematical algorithm used to find the desired portion is an obvious matter of choice in known algorithms for segmentation of data to one of ordinary skill in the art.

### ***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-94 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-29 of U.S. Patent No. 5,975,893 in view of Wu et al (5338198) in view of Yoon et al (5742700). The claims of the '893 patent teach scanning, applying a test, creating a digital model and producing a plurality of successive data sets, however do not show using segmentation and boundary points. Wu shows scanning and receiving a 3D data set, finding a component and creating a model of the component using segmentation, column 7, lines 7-10. During the building of a digital model from scanned data, the computer automatically applies tests to the incoming data to build the digital model, as an example see column 8, lines 6-15 of Wu. The segmentation taught by Wu inherently teaches identifying elements or components. Yoon teaches that it is known to segment by boundary points, Fig. 3, including both automatic and manual segmentation. It would be obvious

to one of ordinary skill in the art to modify the claims of the '893 patent to include segmenting components as shown by Wu and using boundary segmentation as taught by Yoon in order to better manipulate the desired regions. To use X-rays or a photographic image is an obvious matter of choice in known imaging techniques to the skilled artisan. To include imaging gum tissue is an obvious matter of choice in the specific area that is imaged to one of ordinary skill in the art.

Claims 1-94 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over the claims of copending Application No. 09/264,547. Although the conflicting claims are not identical, they are not patentably distinct from each other because to not include data representing tooth roots is an obvious matter of choice to one of ordinary skill in the art in not using an element.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

#### ***Information Disclosure Statement***

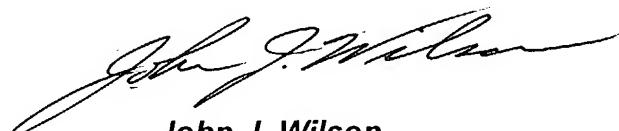
The submission of copies of references cited on the IDS filed September 13, 2004 on a CD is informal because the format of the references was not acceptable. Further, the images as submitted could not be read. As such, the U.S. references have been considered as they are available at the USPTO, however, none of the foreign references or publications cited have been considered.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Wilson whose telephone number is 571-273-4722. The examiner can normally be reached on Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin P. Shaver, can be reached at 571-273-4720. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



***John J. Wilson***  
**Primary Examiner**  
**Art Unit 3732**

jjw  
November 21, 2004